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ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH

1960

Medical Officer of Health.

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Public Health Department,
50, Holydyke,
Barton-on-Humber.

August, 1961.

Mr. Chairman, Ladies and Gentlemen,

I am pleased to be able to report that 1960 proved to be a good year both in respect of the progress which we have made, and with regard to the various "rates" which we use as indices of health in the community. The vital statistics for the year are most satisfactory. The birth rate remained high, there being 594 births in the year, only 13 fewer than in 1959. Deaths decreased from 355 in 1959 to 335 in 1960. The excess of births over deaths indicates a natural tendency for the population to increase quite apart from the increase due to migration into the area resulting from the expansion of the steel industry at Scunthorpe.

Both the crude and corrected death rates are extremely low. More than half the total deaths were due to cardiovascular diseases. Of the 177 deaths due to this group of diseases 40 were due to cerebrovascular diseases (strokes), 56 to coronary disease, 7 to hypertensive heart disease and 55 to other heart disease. All the cancers together only caused 59 deaths - just a third of the number due to the vascular diseases.

In view of our extremely low overall death rate it would appear that the high mortality from cardiovascular diseases indicates a low mortality from other causes rather than any harmful environmental influence predisposing to cardiovascular degeneration. Everyone has to die sometime and of something. Mortality rates, unless related to age at death or to the age and sex structure of the population, can be most misleading. If there was a district where no adverse influences operated, and where no preventable deaths occurred, the mortality statistics would show an excess of deaths due to degenerative conditions of old age. A high proportional mortality ratio for such diseases therefore is not necessarily a bad sign. Alternatively, such an excess could result from extra cases of cardiovascular disease and not from a reduction in other causes of death. In these circumstances it would be important to try to ascertain the causes, and remedy them where possible. One hitherto unsuspected influence must be considered in this connection. It has been found by Prof. Morris that mortality from cardiovascular diseases is higher in areas supplied with "soft" water than in areas with

"hard" drinking water supplies. Surveys both in England and in the U.S.A. have shown that there is a definite association between hardness of drinking water supplies and mortality rates for cardiovascular diseases. It is possible that some constituent of "hard" water may indeed protect people from these diseases. We must watch future developments in this research with great interest, for if this hypothesis is substantiated we shall have to revise our attitude to water softening. At present the North Lindsey Water Board is softening the water from the chalk sources from 325 ppm to 65 ppm, and the water from the Winterton bore from 450 ppm to about 60 ppm. These levels have in the past been considered optimal, but may well need reviewing in the future.

Amongst the tables included in this year's report is one based on locally compiled statistics showing deaths in the principal biological periods of life. This table does not agree with that based upon the Registrar General's figures. This is because information given on death certificates is often inadequate for proper classification. In some instances the Registrar General obtains further confidential information from the certifying doctor which results in a death being classified in a different way from that suggested by the death certificate. For example, a death certificate might show a death as having been due to heart disease. If the Registrar General ascertained that the heart disease was due to syphilis he would classify the death as having been due to syphilis, although this might not appear on the death certificate. It was formerly possible for discrepancies between local and nationally compiled figures to be checked, but owing to mechanisation of the Registrar's office this can no longer be done. Some discrepancies between the tables are therefore inevitable. The locally compiled table gives a useful guide as to the importance of different causes of mortality at various ages. It indicates the importance of accidents as the major cause of death in young people - for 8 men aged 15 to 50 died as a result of motor vehicle accidents, and 3 men and 1 woman between these ages died from other accidents.

Much though has been given to the question of road safety in recent years. Road improvements, and the introduction of the double line marking have made safe driving easier. The new "10 year +" examination of vehicles, the children's cycling proficiency tests, and the proposed new legislation regarding driving under the influence of alcohol should all help to reduce accidents. In spite of all this, and despite the fact that road traffic in our area is very much lighter than in most parts of England, deaths from road accidents are increasing.

From a medical point of view there are two aspects of road safety which do not appear to have received sufficient attention. Both are concerned with the fitness of people to hold licences and drive motor vehicles.

Prior to the Mental Health Act of 1959 "Mental Defectives" who were under statutory supervision were barred from holding driving licences. Under the new Act, only the severely subnormal are barred automatically. Unless a specific recommendation is made by a doctor that he should not drive, a subnormal person with the mentality of a child of 8 can now legally obtain a licence and drive a fast motor cycle or car. A number of these young men obtain licences, and others wish to do so. Although they can neither read nor write, they get someone else to fill in the application form. Some of them master the simple skills of driving and pass their tests, but one cannot help wondering whether they will be safe drivers. American workers claim to have shown that the accident rate for mentally dull drivers is considerably higher than that for other drivers, and it has been stated that a "mental age" of 11 is necessary for the safe driving of motor vehicles. On what evidence these statements are based I do not know. If they are well founded it would seem that the provisions in the new Mental Health Act are a retrograde measure. An adult with a mental age of 11 years would have an I.Q. of 73. Almost all subnormal persons have I.Qs. below this figure.

Some of these people, however, although very dull are well adjusted to society and work well. A few have shown themselves to be skilful agricultural tractor drivers. Such people might well pass their driving test, and retain an adequate understanding of the statutory road signs. Their illiteracy of course would result in them failing to read the unofficial warning signs which are used in emergencies, and they could not read notices about parking restrictions in towns. To what extent their illiteracy may make them a danger one cannot forsee, but this is a matter which requires investigation.

The second problem in connection with fitness to drive concerns people who may be liable to attacks of unconsciousness. It is known that many epileptics make false declarations on their applications, obtain licences and drive cars. If an accident results they do not disclose that they are subject to fits, and it is not known how many accidents are due to this. A number of these people continue to drive in spite of advice from their doctors that they should not do so.

Both of these problems are controversial. The degree of risk to the public is not known in respect of either. In neither case is it desirable that the doctors concerned should inform the licensing authority, for this would introduce the risk of epileptics failing to seek treatment and so increase the danger. In the case of the mentally subnormal, some might be discouraged from taking advantage of the newly developing mental health services if they thought that this might result in withdrawal of a driving licence. A solution to this problem should be sought which does not involve disclosure by the doctor. The possibility of rewording the questions on the application for renewal of licence and requiring that this be completed in the presence of a policeman, magistrate or clergyman, might be worth consideration.

The Registrar General's figures attribute 15 deaths to motor vehicle accidents in 1960 compared with only 7 in 1959. The locally compiled statistics show 12 such deaths. Eight of these fatalities involved men aged 45 or less. Four of those killed were pedestrians, 2 being struck by cars and 2 by motorcycles. Four more of the deaths were of drivers of vehicles, 2 motor cycles and a land Rover crashed without involving any other vehicle or person, and a car skidded into a tree in avoiding collision with a lorry. The remaining 4 accidents involved collisions between two vehicles. In each case one of the vehicles involved was a motorcycle, the others being a pedal cycle, a lorry, a bus and a van. A motorcycle was therefore involved in 8 out of 12 fatal accidents, and in 5 of these it was the motorcyclist who was killed.

One of the last pleas made by the late Councillor Gough at a Council meeting was for research into road accidents. He felt that professional drivers were probably safer than amateur drivers. The questions he posed could only be answered if a large scale organised survey were carried out, and the numbers of drivers at risk in each category, and the distances driven by them known. Such an enquiry would be expensive and time consuming, and far beyond the means of your health department. He would have been interested to know that only one of the 12 deaths in 1960 was of a professional driver.

The Stillbirth rate, Infant Mortality Rate, Neonatal Mortality and Perinatal Mortality rates are all low - a most satisfactory state of affairs. The investigation of stillbirths and neonatal deaths which was carried out during the year did not yield any conclusive results. Some

difficulty was experienced in getting the post-mortem specimens soon enough, and in some instances specimens were not suitable for animal inoculation tests. Although many of the doctors in the area cooperated and 74 antenatal sera were tested, no antenatal tests had been performed on 19 of the mothers whose babies subsequently died. None of the mothers on whom both antenatal and postnatal test results are available so far had a rising titre, but two had falling titres of antibodies indicating infections prior to the pregnancy. Rising titres were noted in some of the Barton-on-Humber mothers whose babies died, but even in these cases the titres observed were too low to be acceptable as proof of active infection. It is unlikely that toxoplasmosis made a significant contribution to perinatal mortality in this area in 1960. The very low perinatal mortality rate which the Rural District experienced during the year supports the view that no harmful environmental influence was operative.

INFECTIOUS DISEASES.

Our experience of infectious diseases in 1960 was also very favourable. There were only 95 notified cases of infectious disease in 1960 compared with 640 the preceeding year. Much of this difference was due to the fact that there was a measles epidemic with 506 cases in 1959 whereas only 12 cases occurred in 1960, but there was a decline in dysentery and scarlet fever notifications also. There were 31 cases of whooping cough notified during the year, compared with 4 in 1959. The incidence of pulmonary tuberculosis showed little change, seven new cases being notified compared with eight in 1959.

Brucellosis.

Besides those which are at present notifiable there are a number of other infectious diseases which are of interest to us as a public health authority because it is possible to take effective action to prevent them. In an agricultural area such as this the condition called Brucellosis is of special interest since it is primarily a disease of farm animals. It is usually spread to man either by contact with infected animals or as a result of drinking infected milk. Although this has for some years been a specified area in which only "designated" milk may be sold, some farm labourers do obtain free raw milk from the farms where they work. Very little "raw" T.T. milk is retailed in the area now, nearly all the milk being pasteurised. With a few exceptions, therefore, everyone in the district has for the past few years been drinking milk which has been either pasteurised or sterilised. Milk

which has been subjected to either of these forms of heat treatment is incapable of transmitting Brucellosis. One would not therefore expect human Brucellosis to be a problem in the area. Tests for Brucellosis were carried out upon many of the maternal blood specimens taken in the course of the Toxoplasmosis investigation, and a surprisingly high incidence of positive brucella agglutination tests was recorded. This high incidence was also found among infants in Barton-on-Humber who had never drunk unpasteurised milk in their lives, and had no contact with farm animals. It soon became apparent that there was a considerable undercurrent of unrecognised undulant fever in the area, the incidence of positive agglutination tests being many times higher than that recorded in antenatal blood specimens in Oxfordshire, and positive at higher titres. It was not possible to ascertain how the infection was being transmitted. The County Health Inspector collaborated by taking special samples of pasteurised milk when milk from herds known to be excreting Brucella was being processed, in order to confirm that the process was indeed effective, and that no heat resisting strain of the germ had developed. Biological testing of these samples showed that the treated milk was safe. The possibility that the infection may be contracted as a result of eating undercooked beef from infected animals will have to be considered, but such a mode of infection would be extremely hard to prove.

The incidence of Brucella infection in cattle in this area is high. In the last four years seventeen different herds in the area have been found to be excreting Brucella abortus in their milk, eight of them persistantly for several years. During 1960 six herds were found to be excreting Brucella abortus and one was excreting the more virulent Brucella melitensis. Most of the infected herds are in the Goxhill and Barrow area, although occasionally herds in other parts of the district are found to be affected.

As a result of vaccination with strain 19 epidemic abortion in the herds is prevented, but this practice has failed to prevent infection of mammary glands with resulting danger to animals and man. The Ministry of Agriculture is currently investigating the extent of bovine brucellosis in England, and it is to be hoped that this will be followed by an area eradication scheme similar to those which have been successful in the Scandinavian countries. Only by eradicating the disease in animals can the risk to man be eliminated. While the Government's decision to offer free S.19 vaccination to all female calves is to be commended because it will reduce the need for adult

vaccination, this measure cannot be expected to reduce the risk to man.

Some farmers are now contemplating freeing their herds of Brucellosis voluntarily, for the disease causes considerable economic loss. Although S.19 vaccination reduces the obvious loss due to epidemic abortion, less obvious losses still occur. For example, bulls which have been suckled by infected cows may fail to pass the requisite tests and be rejected for export. Vaccination has reduced the incidence of abortion in cattle in this country from 8% to 2%, and only a sixth of the abortions which now occur are believed to be due to Brucellosis. The main advantage of vaccinating all the female calves in the country would therefore be that unlike adult vaccination, this procedure does not cause serological changes which would interfere with an eradication scheme.

It is in the interest both of farmers and of the public that the veterinary disease be eradicated, and we must hope that this action will be taken soon. During the process there may be some increased risk to the public while farmers selectively send their infected animals for slaughter, for during this period much infected meat may be sold. Meat inspection does not detect Brucella infection, and human beings can be infected by handling infected meat. In view of the long term benefits which would accrue from an eradication scheme, such a short term risk is acceptable provided we watch for the appearance of human cases, take reasonable precautions to prevent them, and secure early and adequate treatment.

Regrettably, the symptoms of Brucellosis in man are of such a nature that the disease is often not recognised and may be mistaken for a wide range of other conditions. The most frequent symptom is weakness. Sweats, chills and loss of appetite are complained of by 75% of cases, and over 50% of cases have generalised aches, headache, shivering attacks, complain of nervousness or backache. Other symptoms such as depression, insomnia and coughs occur in a minority of cases. Untreated, the disease runs a variable course, and although most cases recover in from 2 to 6 months, the illness occasionally lasts for several years. For this reason Brucellosis may case more unhappiness than many more serious conditions. Treatment with modern drugs shortens the course of the disease greatly.

It is hoped that during 1961 this disease will be made locally notifiable, so that we may try to trace sources of infection.

Similar action is also contemplated in respect of Leptospirosis, another disease of animals which is transmissable to man. The commonest of these infections is Weils Disease. A high proportion of rats excrete the germ "Leptospira Icterohaemarrhagica" in their urine. Sewermen, agricultural workers, miners and workers in fish docks whose work involves contact with water polluted with rat urine are at risk. Although the disease has only a low mortality, most of the cases which are known to have occurred in North Lincolnshire in the past few years have been fatal. This is probably because records of causes of death are sent to the Health Department, while non fatal cases may not be reported. Reporting of cases would enable us to locate infestations with infected rats, and poisoning these rats should reduce the risk of further cases. As you know, in this area we are now supplying warning cards for workers exposed to an occupational risk of Weils disease, to carry and show their doctor in the event of feverish illness. This card also gives advice about the use of protective clothing, for it is believed that the germ actually enters the body through a scratch or abrasion. By avoiding injury to the skin, or avoiding immersion of any abrasion in polluted water, workers can do much to protect themselves from risk of Weils Disease.

SEWERAGE.

Good progress has been made with the council's sewerage schemes at Goxhill, Winterton and Wrawby. The engineers prepared schemes to sewer the major villages which lie on the Wolds and an informal enquiry was held in connection with the scheme for Ulceby, Thornton Curtis and Wootton in November. Sewage from two of these villages is at present discharged untreated into disused chalk quarries causing serious risk of pollution of the underground water from which our principal public supplies are abstracted. It is therefore to be hoped that these schemes can be put in hand at an early date.

GENERAL.

Slum clearance has proceeded rather slowly, the rate being determined by the rate of building council houses. Owing to the increasing population, to the increasing proportions of old people, and of small families, a larger number of houses is required each

year. The rate of council house building has been kept down by a number of factors, including the capacity of architects to prepare schemes and Government restriction.

Under these circumstances the letting of council houses poses problems. In previous years I have criticised the council's method of letting houses, which often operated to the detriment of those in greatest need when they were considered socially unacceptable. Although the method of letting has not been changed, I am happy to be able to report that recently there has been a very great improvement in this respect. Many local representatives have let houses to "Problem Families" who formerly occupied slum properties. It is also very gratifying that all the problem families rehoused have shown some improvement in their standards, and about half of these have improved to such an extent as to be no longer social problems. Rehabilitation is usually a laborious time consuming and difficult business, and such good results are a tribute to the work of the Health Visitors, Children's Officers and other social workers.

WATER SUPPLIES.

This district is fortunate insofar as the amount of water available in the two main waterbearing strata is adequate for the needs of the area, and is likely to remain so in the forseeable future. The eastern half of the district lies on a chalk formation nearly 300 feet thick, and deep bores in this chalk at Barrow-on-Humber and Barton-on-Humber provide water for more than half of our area. The north western part of the council's area is supplied from a bore at Winterton Holmes from a limestone source but with associated strata of ironstone which cause the raw water to be rich in iron, and to contain bacteria capable of metabolising this mineral.

The capacity of the plant at our bores has proved adequate to meet the requirements both of industry and of the domestic consumers, even in times of drought, and available reserves of underground water are such that preliminary work is in hand to establish a bore at Thornton Curtis to provide water for "export" to the adjacent area served by the North East Lincolnshire Water Board, which has been unable to find adequate extra sources within its own boundaries.

Quality of water

a) Chalk Sources, Barrow and Barton. Bacteriological Quality.

Owing to the fissured nature of the chalk, which outrops in the wolds, the water at Barton-on-Humber and Barrow-on-Humber bores is liable to occasional slight bacterial pollution. The numbers of organisms which are found are small compared with those found in most river waters, and since the water is chlorinated before distribution, this need give no cause for alarm. The pollution tends to be worse at Barrow bore than at Barton, and each year has become apparent about the second week in July irrespective of whether we have a dry or a wet summer.

Attempts to trace the sources of this pollution have been unsuccessful, but the council is endeavouring to protect the water supplies by giving priority to new sewerage schemes for those villages which lie on the chalk. Schemes are now in hand for all the larger villages which lie on the chalk neighbouring the pumping stations, and only the small hamlet of Burnham has so far been excluded. It is quite possible however that the pollution may come from either Burnham, or from isolated properties beyond reach of village sewerage schemes, and one cannot be certain that the present proposals will eliminate pollution completely. Two of the villages which it is hoped to sewer in the near future at present discharge their sewage directly into old chalk quarries. It is felt that elimination of these obvious dangers may go a long way towards safeguarding our supplies from pollution. In a district which has in the past discharged sewage from whole villages into the chalk it is hardly surprising that some farms have piped the outlets of their septic tanks into disused wells. The council's new schemes will stop the sewage from hundreds of houses reaching the chalk but elimination of pollution from the remaining few dwellings would be a much more difficult matter. Contamination from land on which manure has been spread or on which animals graze cannot be prevented. Consequently although all reasonable measures will be taken within the next few years to protect our water from pollution from human sources, we shall always have to rely upon chlorination to ensure complete freedom from bacteria. Both Barton-on-Humber and Barrow pumping stations are now equipped with chlorinating plant having connection to two gas cylinders, so that it is possible to change chlorine bottles without interrupting

chlorination. Barrow bore, where pollution is a more serious problem, is also fitted with apparatus which automatically measures the residual chlorine every few minutes and gives warning in the event of this falling below a safe level. Thus should the chlorination plant fail, it would be possible to stop pumping at once, and so avoid risk of distributing inadequately treated water.

Chemical Quality.

The raw water at the chalk sources is very hard and recently both bores have been equipped with base exchange water softening plant. This plant reduced the hardness from 325 ppm. to nil, and the treated water is then mixed with a little raw water to produce a water of about 65 ppm. hardness for distribution.

In the past water of about 60 ppm. has been considered to be optimal, for although soft it is not plumbo solvent. In view of the statistical evidence that mortality from cardiovascular diseases is higher in soft than in hard water areas which is mentioned earlier in this report, we must reserve judgement on this point. When further evidence is obtained to justify doing so, we shall reconsider this question.

The water from both Barrow and Barton bores is deficient in fluoride, with the result that the teeth of children in the area are unduly prone to decay. Apart from reservations regarding these two points I have no hesitation in classing the water supplied from the chalk sources as excellent.

b) Winterton. Bacteriological Quality.

Bacteriologically the water from Winterton Holmes pumping station has been satisfactory whenever it has been tested. There is a thick layer of impervious clay overlying the water bearing limestone which protects the water from surface pollution. Owing to the long distance which the water has to travel percolating through rock to reach the bore, contamination with bacteria of faecal origin is not considered likely at this source. Some increased risk of pollution may result if the team employed by the steel industry persist in test boring for ironstone without sealing their boreholes with impervious material afterwards.

Although there has never been any evidence of bacterial pollution of water at this source, the water is chlorinated prior to distribution.

Chemical Quality.

The water from this source is exceptionally hard, and also contains iron. When it was distributed in this state there were frequent complaints because as soon as the water became more alkaline, particularly when it was heated and dissolved CO_2 was driven off, a red precipitate of iron salts appeared. Although not harmful to health, this did cause staining of clothing washed in the water. In order to prevent this trouble and to provide a softer water which would be more acceptable to the consumer, the North Lindsey Water Board installed softening plant using lime treatment. This plant is rather unusual in that Ferric hydroxide is used instead of alumina as the precipitant. After aeration the water enters accelators where Ferric hydroxide solution (prepared from ferrous sulphate) lime, and Soda are added. Not only do the lime salts which cause the hardness precipitate, but also much of the iron is taken out of solution as a result of the extreme alkalinity. Clear water from the accelators then passes through sand filters after having been dosed with sufficient sulphuric acid to bring the pH down to about 9. A slight rise in pH tends to occur during filtration, and the water which is distributed tends to be rather alkaline. PH readings varying from 8.5 to 11.0 have been reported.

Although these pH readings are higher than is usual for a public supply, water of this degree of alkalinity is not considered likely to be harmful. The American Public Health Service permits water with a pH of up to 10.6 for public supplies. The World Health Organisation advises that water should have a pH of between 7.0 and 8.5 and considers the pH excessive if it exceeds 9.2. The North Lindsey Water Board is looking into the possibility of modifying the treatment so that a less alkaline water is produced. This is a difficult problem, because for years the distribution pipes have carried very hard water, and are lined with lime deposits. A less alkaline water would tend to dissolve some of this scale, becoming harder, and some trouble from sludge due to erosion of this scale might result.

The human body produces large quantities of carbonic acid which is excreted in the breath. This reserve of acid is more than sufficient to neutralise the small amount of alkali which can be obtained from the water

and no ill effects upon general health need be feared from drinking this water. We all wash using alkaline soaps, and many people use alkaline bath salts without ill effect. People with normal skins have therefore nothing to fear. Alkalis have a fat removing action, because they tend to combine with fats to form soaps. In theory, therefore, a few people with dermatitis or unduly dry and sensitive skins might find alkaline water a little harsh on their hands. It is to overcome this that modification of the treatment is contemplated. Details of chemical analysis of samples of water from this source are included in this report. You will see from these that the fluoride level of 0.12 ppm. is only about an eighth of that required to protect children's teeth from decay. Apart from this deficiency in fluorine and its alkalinity, the water now distributed from Winterton pumping station is of excellent quality.

AIR POLLUTION.

During 1960 measurements of air pollution continued, but on a smaller scale than in 1959. Only two sets of instruments owned by the Council were retained in use, and these were stationed at Redbourne and Messingham. Monthly deposits in both villages varied greatly according to the wind direction, and during the latter part of the year the schools at Messingham and at Hibaldstow assisted by recording the direction and strength of wind each day. The average deposits at Messingham were higher than those at Redbourne, and the summer average exceeded the winter average. The pH of the deposit also varied greatly, being high when south-easterly winds carried pollution from the cement works to the village, and low when northerly winds blew pollution there from the Scunthorpe steel industry.

The average deposits at Redbourne were satisfactorily low. Here too the mixture of pollution from various sources, reflecting the vagaries of our weather, presents a confused picture. Such conflicting evidence as high pH, SO_2 and soluble calcium figures were recorded in the same month. The probable reason for this can be seen by looking at a map, for the cement works lie close to a line joining the centre of Scunthorpe to the village. The same north-westerly wind which brings alkaline deposits of lime from the cement works will also tend to be loaded with sulphur dioxide from Scunthorpe.

In this year's report, I am including details of food and milk sampling carried out by the County Public Health Inspector, to whom I am indebted for these details. Apart from this, the tables which follow are mostly those familiar to you from previous reports. The rather full information about water supplies has been included at the request of the Ministry of Health. This accounts for the subject being so fully treated in two successive years.

I am indebted to Mr. McIntosh for his help throughout the year, and for providing the information about the work of the Public Health Inspectors during 1960.

I am,

Your obedient servant,

J. S. Robertson.

GENERAL DESCRIPTION OF THE DISTRICT.

The Rural District of Glanford Brigg covers an area of about 136,595 acres and includes 41 parishes. The population is 34,721.

Although the main industry is agriculture, there are a number of industries in the district, including iron ore mines, chalk quarries, beet sugar manufacture, ship building and repairing, the manufacture of cement, bricks, artificial manure and poultry food, and the refining of oil. There are many other small industries. Many inhabitants of the district are employed in the steelworks in the Borough of Scunthorpe and a large number are also employed at Immingham Docks.

Area of the district	136,595 acres
Population of the district (1961 census)	34,721
Number of inhabited houses	11,023
Rateable Value 1960/61	£372,798
Product of a penny rate 1959/60	£1,668

VITAL STATISTICS.

	1958	1959	1960
Mid-year Populations	32,780	33,580	34,721
Live Births	563	607	594
Stillbirths	9	14	11
Infant Deaths under 4 weeks	9	10	7
Total Deaths	383	355	335

	Legitimate			Illegitimate			Total
	Male	Female	Total	Male	Female	Total	
Live Births	287	273	560	18	16	34	594
Stillbirths	4	6	10	1	-	1	11
Infant Deaths under 1 year of age	8	3	11	1	-	1	12
Infant deaths under 4 weeks of age	4	2	6	1	-	1	7

	Glanford Brigg Rural District		England and Wales
	1960.	1959.	1959.
Crude Birth Rate	17.4	18.1	16.5
+ Corrected Birth Rate	18.6	19.0	(16.5)
Stillbirth Rate	18.2	22.3	21.
Infant Mortality Rate	20.2	18.1	22.
Legitimate Infant Mortality Rate	19.6		22.
Neonatal Mortality Rate	11.8	16.5	15.9
Perinatal Mortality Rate	26.5	35.4	34.
Illegitimacy Rate	5.73	4.4	5.1
Crude Death Rate	9.8	10.6	11.6
+ Corrected Death Rate	10.4	11.2	(11.6)

+ These corrections take account of the differing proportions of old and young people in the area, and make the resulting rate comparable with that for England and Wales. Hence a health resort to which old people retire and die would have a high crude rate and a low comparability factor to compensate, whereas an industrial area with few old people would have a low crude rate and a high comparability factor. The comparability factor for this district is 1.05 for births and 1.06 for deaths.

CAUSES OF DEATH IN THE DISTRICT DURING THE YEAR 1960.

This table gives the causes of death in accordance with the abbreviated list of 36 groups of the World Health Organisation Nomenclature Regulations, 1948.

	Causes of Death	Male	Female
1.	Tuberculosis, respiratory	-	-
2.	Tuberculosis, other	-	-
3.	Syphilitic Disease	-	2
4.	Diphtheria	-	-
5.	Whooping Cough	-	-
6.	Meningococcal infections	-	-
7.	Acute Poliomyelitis	-	-
8.	Measles	-	-
9.	Other infective and parasitic diseases	-	-
10.	(Malignant neoplasm, stomach	7	2
11.	(Malignant neoplasm, lung, bronchus	6	-
12.	(Malignant neoplasm, breast	-	5
13.	* (Malignant neoplasm, uterus	-	2
14.	(Other Malignant & Lymphatic Neoplasms . ..	19	16
15.	Leukaemia, aleukaemia	2	-
16.	Diabetes	1	4
17.	Vascular lesions of nervous system	16	24
18.	Coronary disease, angina	36	20
19.	Hypertension with heart disease	4	3
20.	Other heart disease	25	30
21.	Other circulatory disease	10	9
22.	Influenza	-	-
23.	Pneumonia	3	5
24.	Bronchitis	8	1
25.	Other diseases of the respiratory system . ..	2	1
26.	Ulcer of the stomach and duodenum	2	3
27.	Gastritis, enteritis and diarrhoea	-	1
28.	Nephritis and nephrosis	2	3
29.	Hyperplasia of prostate	6	-
30.	Pregnancy, childbirth and abortion	-	-
31.	Congenital malformations	4	1
32.	Other defined and ill-defined diseases	14	10
33.	Motor vehicle accidents	14	1
34.	All other accidents	7	3
35.	Suicide	1	-
36.	Homicide and operations of war	-	-
	Total:	189	146

* Malignant neoplasm means cancer.

CAUSES OF DEATH AT VARIOUS PERIODS OF LIFE.

	0-1	1-14	15-49	50+
Infectious Diseases.				
Tuberculosis, respiratory	-	-	-	-
Tuberculosis, other	-	-	-	-
Syphilitic disease	-	-	-	-
Diphtheria	-	-	-	-
Whooping Cough	-	-	-	-
Meningococcal infections	-	-	-	-
Acute Poliomyelitis	-	-	-	-
Measles	-	-	-	-
Other	-	-	-	-
The Cancers.				
Stomach	-	-	-	10
Lung and Bronchus	-	-	1	6
Breast	-	-	3	2
Uterus	-	-	1	2
Other	1	1	3	28
Leukaemia, Aleukaemia	-	1	-	2
Diabetes	-	-	-	2
Cardiovascular Diseases.				
Vascular lesions of nervous system	-	-	3	42
Coronary disease, angina	-	-	2	51
Hypertension with heart disease	-	-	-	7
Other heart disease	-	1	1	62
Other circulatory disease	-	-	5	17
Respiratory Diseases.				
Influenza	-	-	-	-
Pneumonia	3	-	1	10
Bronchitis	-	-	-	7
Other	-	-	1	1
Miscellaneous				
Ulcer of the stomach and duodenum	-	1	-	3
Gastritis, enteritis and diarrhoea	-	-	-	1
Nephritis and nephrosis	-	-	1	9
Hyperplasia of prostate	-	-	-	6
Pregnancy, childbirth and abortion	-	-	-	-
Congenital malformations	2	1	-	-
Other diseases	5	-	1	5
Motor vehicle accidents	-	-	8	4
All other accidents	1	-	4	5
Suicide	-	-	-	1
Homicide and operations of war	-	-	-	-

TABLE OF NOTIFICATIONS OF INFECTIOUS AND OTHER DISEASES BY AGE GROUPS.

Disease	0+	1+	2+	3+	4+	5+	10+	15+	25+	45+	65+	Tot.
Measles	1	-	2	2	2	5	-	-	-	-	-	12
Whooping Cough	2	5	7	-	4	11	2	-	-	-	-	31
Scarlet Fever	-	-	1	1	1	9	-	-	1	-	-	13.
Poliomyelitis	-	-	-	-	-	-	-	-	-	-	-	-
Smallpox	-	-	-	-	-	-	-	-	-	-	-	-
Diphtheria	-	-	-	-	-	-	-	-	-	-	-	-
Dysentery	-	1	3	1	-	-	1	-	7	2	2	17
Meningococcal Inf.	-	-	-	-	-	-	1	1	-	-	-	2
Ac. Pneumonia	-	-	-	-	-	-	-	-	2	3	-	5
Encephalitis Inf.	-	-	-	-	-	-	-	-	-	-	-	-
Encephalitis Post Inf.	-	-	-	-	-	-	-	-	-	-	-	-
Enteric Fever	-	-	-	-	-	-	-	-	-	-	-	-
Paratyphoid Fever	-	-	-	-	-	-	-	-	-	-	-	-
Erysipelas	-	-	-	-	-	-	-	-	-	1	-	1
Food Poisoning	-	-	-	-	1	-	2	1	1	-	-	5
Tuberculosis Resp.	-	-	-	-	-	-	-	-	4	2	1	7
Tuberculosis of C.N.S.	-	-	-	-	-	-	-	-	-	-	-	-
Tuberculosis Other	-	-	-	-	-	-	-	-	1	-	1	2
Total	3	6	13	4	8	25	6	2	16	8	4	95

Food Poisoning:- Cases ascertained other than by notification

NIL.

PARTICULARS OF IMMUNISATIONS AND VACCINATIONS CARRIED OUT IN THE AREA DURING 1960.

<table>
<tr><th>Type of Immunisation or Vaccination.</th><th>Under 1</th><th>1 - 4</th><th>5 - 14</th><th>15 or over</th><th>Total</th></tr>
<tr><td>Diphtheria & Whooping Cough Immunisation</td><td>11</td><td>4</td><td>1</td><td>-</td><td>16</td></tr>
<tr><td>Diphtheria, Tetanus and Whooping Cough Immunisation.</td><td>249</td><td>216</td><td>17</td><td>-</td><td>482</td></tr>
<tr><td>Diphtheria, Tetanus Immunisation.</td><td>-</td><td>4</td><td>1</td><td>-</td><td>5</td></tr>
<tr><td>Whooping Cough Immunisation.</td><td>8</td><td>4</td><td>2</td><td>-</td><td>14</td></tr>
<tr><td>Whooping Cough and Tetanus Immunisation</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>Smallpox Vaccination</td><td>189</td><td>22</td><td>12</td><td>25</td><td>248</td></tr>
<tr><td>Smallpox Re-Vaccination</td><td>-</td><td>-</td><td>3</td><td>10</td><td>13</td></tr>
<tr><td>Tetanus Vaccination</td><td>2</td><td>4</td><td>12</td><td>10</td><td>28</td></tr>
<tr><td>Tetanus Booster</td><td>-</td><td>-</td><td>-</td><td>2</td><td>2</td></tr>
<tr><td>Diphtheria alone (Primary)</td><td colspan="2">7</td><td>61</td><td colspan="2" rowspan="2"></td></tr>
<tr><td>Diphtheria Booster</td><td colspan="3">280</td></tr>
</table>

Numbers of children born in the years 1951 - 1960 who have been immunised or vaccinated, and proportion who are protected.

	1960	1959	1958	1957	1956	1955	1954	1953	1952	1951
No. of live births in year	594	607	563	535	493	517	493	552	509	531
Diphtheria Immunisation (includes all combinations of vaccine).	75	311	302	324	288	339	354	227	160	183
Whooping Cough Immunisation (single vaccine)	2	8	5	6	6	9	22	92	29	18
Tetanus Immunisation (single vaccine)	2	1	2	1	2	2	3	3	1	5
Combined Whooping Cough and Diphtheria Immunisation	2	8	23	171	241	284	238	54	18	9
Combined Tetanus and Diphtheria Immunisation	-	1	2	4	2	1	2	1	1	-
Combined Diphtheria Whooping Cough & Tetanus Immunisation	73	299	273	131	14	16	11	5	2	1
Smallpox Vaccination	102	306	188	153	133	119	130	118	103	94
*% protected against Diphtheria	12.6	51.2	53.6	60.6	58.5	66.6	72.0	41.1	31.4	34.5
% protected against Whooping Cough	12.9	51.9	53.5	57.6	52.3	59.8	54.9	27.3	9.6	5.3
% protected against Tetanus	12.6	49.6	49.2	25.4	3.6	3.7	3.2	1.6	0.8	1.1
% protected against Smallpox	17.1	50.4	33.4	28.6	26.9	23.0	26.4	21.4	20.2	17.7

* These estimates do not take into account any migration into and out of the district.

Public Water Supplies.

I Bacteriological Examinations.

(a) Chalk Sources.

Bore	Presumptive Coli Count	"Raw" water	Chlorinated Water
Barrow-on-Humber	Less than 1 per 100 ml.	49	45
	1 to 2 per 100 ml.	13	1
	3 to 10 per 100 ml.	18	0
	More than 10 per 100 ml. or B Coli type 1 present	12	0
Barton-on-Humber	Less than 1 per 100 ml.	78	48
	1 to 2 per 100 ml.	9	0
	3 to 10 per 100 ml.	2	0
	More than 10 per 100 ml. or B Coli type 1 present	4	0

(b) Limestone Sources.

Only Winterton bore is in regular use. The Water Board sample the water weekly, and report that all samples have been free of organisms.

II Distribution of Water Supplies - By Parish.

Parishes	Total Houses	No. of Houses on Water	Total Population	Population on Water
Alkborough	145	136	460	414
Appleby	240	227	770	693
Barnetby-le-Wold	410	406	1,330	1,197
Barrow-on-Humber	793	757	2,590	2,320
Bonby	92	86	290	261
Bottesford	803	[illegible]5	2,590	2,258
Broughton	853	780	2,750	2,463
Burringham	314	300	1,030	987
Burton-on-Stather	456	435	1,490	1,347
Cadney-cum-Howsham	119	113	380	347
Croxton	23	20	70	62
East Butterwick	84	76	260	232
East Halton	199	185	630	563
Elsham	82	74	260	234
Flixborough	135	126	430	389
Goxhill	383	365	1,250	1,124
Gunness	248	232	770	690
Hibaldstow	333	310	1,090	981
Holme	46	42	140	126
Horkstow	39	38	120	108
Kirmington	119	113	380	342
Kirton-in-Lindsey	603	580	1,990	1,799
Manton	38	29	100	91
Melton Ross	89	81	270	243
Messingham	461	435	1,510	1,361
North Killingholme	66	64	220	198
Redbourne	103	96	330	297
Roxby	124	117	400	359
Saxby-All-Saints	64	59	200	178
Scawby-cum-Sturton	459	435	1,480	1,332
South Ferriby	224	210	710	631
South Killingholme	288	270	920	826
Thornton Curtis	120	114	390	351
Ulceby	286	267	910	822
West Halton	68	67	230	207
Whitton	56	50	170	153
Winteringham	268	250	860	781
Winterton	878	831	2,810	2,563
Wootton	119	113	380	342
Worlaby	92	85	290	261
Wrawby	268	252	860	782

Note: There are no public standpipes. Figures are not available regarding the numbers of shared out door supplies, but these are relatively few. The great majority of houses have individual taps, but in a very few instances these may be outside the house.

III Chemical Analyses.

(a) Chalk Sources

Barton Bore.

	Raw Water	Treated (Softened) Water
Appearance	Clear and bright	Clear and bright
Colour	Colourless	Colourless
Taste	normal	normal
Smell	none	none
Reaction, pH Value	7.4	7.4
Ammoniacal Nitrogen as N	0.004 ppm	0.008 ppm
Albuminoid Nitrogen as N	0.014 ppm	0.048 ppm
Nitrous Nitrogen as N	none	none
Nitric Nitrogen as N	9.0 ppm	8.5 ppm
Hardness (Calculated from mineral Analysis) as $CaCO_3$	324.4 ppm	66.1 ppm
Temporary	207.1 ppm	66.1 ppm
Permanent	117.3 ppm	nil ppm
Permanganate Figure (4 hours at 80°F) as O	0.28 ppm	0.28 ppm
Alkalinity as $CaCO_3$	207.1 ppm	222.1 ppm
Total Solids dried at 180°C	420.0 ppm	450.0 ppm
Silica as SiO_2	6.0 ppm	5.0 ppm
Alumina and Iron Oxide	1.0 ppm	1.0 ppm
Calcium as Ca	120.0 ppm	25.8 ppm
Magnesium as Mg	6.0 ppm	0.4 ppm
Sodium as Na	14.61 ppm	140.05 ppm
Carbonates as CO_3	124.2 ppm	133.2 ppm
Nitrates as NO_3	39.8 ppm	37.6 ppm
Chlorides as Cl	32.0 ppm	34.0 ppm
Sulphates as SO_4	68.9 ppm	67.5 ppm
Iron as Fe	0.02 ppm	0.06 ppm
Fluorine as F by the distillation method	0.11 ppm	0.11 ppm

Probable composition of Mineral constituents:-

	Raw Water	Treated (Softened) Water
Silica	6.00 ppm	5.00 ppm
Alumina and Iron Oxide	1.00 ppm	1.00 ppm
Calcium Carbonate	207.14 ppm	64.44 ppm
Calcium Sulphate	97.64 ppm	----
Calcium Chloride	23.05 ppm	----
Magnesium Carbonate	-----	1.39 ppm
Magnesium Chloride	23.19 ppm	----
Magnesium Nitrate	0.49 ppm	----
Sodium Carbonate	-----	165.30 ppm
Sodium Sulphate	-----	99.82 ppm
Sodium Nitrate	54.00 ppm	51.55 ppm
	412.51	444.55

Barrow Bore.

	Raw Water	Treated (Softened) Water
Appearance	Clear and bright	Clear and bright
Colour	Colourless	Colourless
Taste	normal	normal
Smell	none	none
Reaction, pH Value	7.1	7.2
Free Carbon Dioxide as CO_2	17.0 ppm	15.0 ppm
Ammoniacal Nitrogen as N	0.002 ppm	0.006 ppm
Albuminoid Nitrogen as N	0.008 ppm	0.008 ppm
Nitrous Nitrogen as N	none	none
Nitric Nitrogen as N	6.0 ppm	5.99 ppm
Poisonous Metals (Lead etc).	none	none
Hardness (Calculated from Mineral Analysis as $CaCO_3$	321.4 ppm	63.9 ppm
Temporary	207.1 ppm	63.9 ppm
Permanent	114.3 ppm	----
Permanganate Figure (4 hours at 80°F) as O	0.24 ppm	0.36 ppm
Alkalinity as $CaCO_3$	207.1 ppm	207.1 ppm
Total Solids dried at 180°C	390.0 ppm	430.0 ppm
Silica as SiO_2	5.00 ppm	5.00 ppm
Alumina and Iron Oxide	4.00 ppm	3.00 ppm
Calcium as Ca	121.10 ppm	24.70 ppm
Magnesium as Mg	4.60 ppm	0.53 ppm
Sodium as Na	9.68 ppm	127.92 ppm
Carbonates as CO_3	124.20 ppm	124.20 ppm
Chlorides as Cl	29.00 ppm	31.00 ppm
Nitrates as NO_3	26.60 ppm	26.50 ppm
Sulphates as SO_4	70.00 ppm	67.10 ppm
Iron as Fe	0.08 ppm	0.04 ppm
Fluorine as F by distillation method	0.12 ppm	0.12 ppm

Probable composition of Mineral constituents:-

	Raw Water	Treated (Softened) Water
Silica	5.00 ppm	5.00 ppm
Alumina and Iron Oxide	4.00 ppm	3.00 ppm
Calcium Carbonate	207.14 ppm	61.69 ppm
Calcium Sulphate	999.20 ppm	-----
Calcium Chloride	24.82 ppm	-----
Magnesium Carbonate	------	1.84 ppm
Magnesium Chloride	17.65 ppm	-----
Magnesium Nitrate	0.60 ppm	-----
Sodium Carbonate	------	151.75 ppm
Sodium Sulphate	------	99.23 ppm
Sodium Chloride	------	51.11 ppm
Sodium Nitrate	35.77 ppm	36.33 ppm
	384.18	409.95

(b) Limestone Sources.

Winterton Holmes.

(i) Sample showing high pH.

	Raw Water		Treated (Softened) Water	
Appearance	Clear with trace of suspended matter.		Clear and bright	
Colour	Faintly yellow		Colourless	
Taste	normal		normal	
Smell	none		none	
Reaction, pH value	7.1		10.0	
Free Carbon Dioxide as CO_2	20.0	ppm	none	
Ammoniacal Nitrogen as N	0.002	ppm	0.002	ppm
Albuminoid Nitrogen as N	0.032	ppm	0.024	ppm
Nitrous Nitrogen as N	none		none	
Nitric Nitrogen as N	0.13	ppm	0.13	ppm
Poisonous Metals (Lead etc).	none		none	
Hardness (Calculated from Mineral Analysis) as $CaCO_3$	469.5	ppm	60.6	ppm
Temporary	270.2	ppm	29.0	ppm
Permanent	199.3	ppm	31.6	ppm
Permanganate Figure (4 hours at 80°F) as O	0.48	ppm	0.38	ppm
Alkalinity as $CaCO_3$	270.2	ppm	29.0	ppm
Total Solids dried at 180°C	670.0	ppm	500.0	ppm
Silica as SiO_2	7.00	ppm	9.00	ppm
Alumina and Iron Oxide	3.00	ppm	2.00	ppm
Calcium as Ca	172.18	ppm	12.36	ppm
Magnesium as Mg	9.60	ppm	7.22	ppm
Sodium as Na	47.89	ppm	146.41	ppm
Carbonates as CO_3	162.00	ppm	17.40	ppm
Chlorides as Cl	55.00	ppm	56.00	ppm
Nitrates as NO_3	0.58	ppm	0.58	ppm
Sulphates as SO_4	216.30	ppm	259.9	ppm
Iron as Fe	0.80	ppm	0.12	ppm

Probable composition of Mineral constituents:-

	Raw Water		Treated (Softened) Water	
Silica	7.00	ppm	9.00	ppm
Alumina and Iron Oxide	3.00	ppm	2.00	ppm
Calcium Carbonate	270.18	ppm	28.96	ppm
Calcium Sulphate	217.33	ppm	2.75	ppm
Magnesium Sulphate	47.52	ppm	35.74	ppm
Sodium Sulphate	37.05	ppm	339.31	ppm
Sodium Chloride	90.67	ppm	92.32	ppm
Sodium Nitrate	0.80	ppm	0.80	ppm
	673.55		510.88	

Winterton Holmes.

(ii) Sample showing lowest pH.

	Raw Water		Treated (Softened) Water	
Appearance	Trace of suspended matter		Clear and bright	
Colour	Slightly yellow		Colourless	
Taste	Normal		Normal	
Smell	None		None	
Reaction, pH value	7.1		8.4	
Free Carbon Dioxide as CO_2	29.0	ppm	None	
Amoniacal Nitrogen	0.006	ppm	0.006	ppm
Albuminoid	0.012	ppm	0.012	ppm
Nitrous Nitrogen	trace		None	
Nitric Nitrogen	0.35	ppm	0.34	ppm
Poisonous Metals (Lead etc).	None		None	
Hardness	460.2	ppm	60.6	ppm
Temporary	275.2	ppm	28.0	ppm
Permanent	185.0	ppm	32.6	ppm
Permanganate Figure (4 hours at 80°F)as O	0.44	ppm	0.28	ppm
Alkalinity as $CaCO_3$	275.2	ppm	28.0	ppm
Total Solids dried at 180°C	680.0	ppm	484.0	ppm
Silica as SiO_2	5.0	ppm	6.0	ppm
Alumina and Iron Oxide	8.0	ppm	2.0	ppm
Calcium as Ca	168.1	ppm	11.9	ppm
Magnesium as Mg	9.8	ppm	7.5	ppm
Sodium as Na	51.77	ppm	135.95	ppm
Carbonates as CO_3	165.0	ppm	16.8	ppm
Chlorides as Cl	55.0	ppm	58.0	ppm
Nitrates as NO_3	1.51	ppm	1.55	ppm
Sulphates as SO_4	209.9	ppm	235.4	ppm
Iron as Fe	0.72	ppm	0.04	ppm
Fluorine as F by distillation method	0.15	ppm	0.12	ppm

Probable composition of Mineral constituents:-

	Raw Water		Treated (Softened) Water	
Silica	5.0	ppm	6.0	ppm
Alumina and Iron Oxide	8.0	ppm	2.0	ppm
Calcium Carbonate	275.18	ppm	28.02	ppm
Calcium Sulphate	196.68	ppm	2.31	ppm
Magnesium Sulphate	48.51	ppm	37.12	ppm
Sodium Sulphate	47.96	ppm	301.91	ppm
Sodium Chloride	90.67	ppm	95.62	ppm
Sodium Nitrate	2.08	ppm	2.12	ppm
	674.08		475.10	

FOOD AND DRUGS ACT, 1955.

Samples of Food Taken by County Health Inspector for Chemical Analysis.

Commodity Sampled	No. of Samples Analysed	No. Satisfactory
1. Milk.	96	91
2. Processed milk products (including butter and cream).	3	3
3. Edible fats and oils.	3	3
4. Preserves.	7	7
5. Tinned, bottled, preserved and dried foods.	7	7
6. Alcoholic beverages.	1	1
7. Non-alcoholic beverages.	8	8
8. Sugar and flour confectionery.	3	3
9. Meat and fish products (other than in 5).	5	5
10. Vinegars, pickles, sauces, spices, flavourings and essences.	5	5
11. Cereal products.	1	1
12. Miscellaneous.	-	-
13. Medicines and drugs.	7	7

Five samples of milk were deficient in solids (other than fat) and two of these samples were also deficient in milk fat. These deficiencies were due to natural causes, and the producer advised accordingly.

Milk.

Samples of milk taken for phosphatase and methylene blue tests - samples taken at Pasteurising Plant.

Tuberculin tested milk (Pasteurised)	51
Pasteurised milk	90

All these samples satisfied the phosphatase and methylene blue tests.

Samples taken for biological examination	88
Number positive for Tuberculosis	Nil
Number positive for Brucella Abortus	6

(I am indebted to the County Public Health Inspector for these details).

Air Pollution Measurements.

Messingham.

	pH	Rain	Tar	Ash	Soluble Calcium	Total Solids	Sulphur Dioxide
January, 1960	5.8	3.35	0.43	5.20	1.09	12.52	1.35
February, 1960	6.5	1.93	0.50	7.22	1.62	14.14	1.05
April, 1960	5.8	0.82	0.43	7.35	0.78	12.09	0.54
May, 1960	5.5	0.55	0.53	8.54	0.87	13.84	0.50
June, 1960	7.0	0.43	0.46	10.14	1.59	18.38	0.53
July, 1960	5.6	2.91	0.16	3.44	0.67	11.43	0.45
August, 1960	5.5	2.68	0.40	4.44	1.21	12.45	0.45
September, 1960	6.8	1.77	0.43	2.98	0.58	6.89	0.50
October, 1960	5.9	4.49	0.53	5.96	0.87	14.44	1.04
November, 1960	5.6	3.82	0.26	1.92	0.56	6.95	0.95
December, 1960	6.5	1.89	0.36	3.41	0.83	9.90	1.12
Average for 6 Summer months (Apl.-Sept.)		1.52	0.40	6.15	0.95	12.51	0.49
Average for 5 Winter months (Oct.- Feb.) *		3.09	0.41	4.74	0.99	11.61	1.10
		ins.	Tons per square mile				

* The average for the winter months excludes the month of March during which the specimen bottle was broken.

Air Pollution Measurements.

Redbourne.

	pH	Rain	Tar	Ash	Soluble Calcium	Total Solids	Sulphur Dioxide
January, 1960	6.1	3.43	0.33	4.04	1.16	11.00	0.99
February, 1960	6.0	1.65	0.30	2.48	1.46	8.11	0.73
March, 1960	5.8	0.59	0.37	1.59	0.28	5.60	0.48
April, 1960	6.0	1.06	0.33	2.71	0.90	7.68	0.50
May, 1960	5.0	0.32	0.40	2.21	0.58	5.76	0.43
June, 1960	6.3	0.24	0.50	2.31	0.54	7.25	0.54
July, 1960	6.0	[illegible]	0.26	3.18	1.66	13.57	0.66
August, 1960	5.6	0.65	0.50	3.84	1.06	8.28	0.67
September, 1960	7.6	1.62	0.33	1.99	1.58	6.29	0.63
October, 1960	6.5	4.93	0.43	3.34	1.99	12.12	0.86
November, 1960	6.0	3.75	0.23	2.39	1.57	9.41	1.25
December, 1960	7.2	2.05	0.46	3.51	1.63	12.06	1.46
Average for 6 Summer months (Apl.- Sept.)		1.13	0.38	2.70	1.05	8.14	0.57
Average for 6 Winter months (Oct.- Mar.)		2.66	0.35	2.89	1.35	9.71	0.96
		ins.	Tons per square mile				

ANNUAL REPORT OF THE CHIEF PUBLIC HEALTH INSPECTOR, 1960.

HOUSING.

Total number of new houses erected during the year		331
(i)	By the Local Authority	93
(ii)	By other Local Authorities	-
(iii)	By other bodies or persons	160
(iv)	Number allocated for replacing houses subject to Demolition Orders or otherwise demolished	78

Housing Repairs and Rents Acts, 1954/57.

Number of certificates of disrepair issued	7

Inspection of dwelling houses during the year.

(i)	Total number of dwelling houses inspected for housing defects (under Public Health or Housing Acts)	183
(ii)	Number of inspections made for the purpose	247

Remedy of defects during the year without service of formal notices.

Number of defective dwellinghouses rendered fit in consequence of informal action by the local authority or their officers.	54

Action under statutory powers during the year.

(i) Proceedings under Public Health Acts:-

(a)	Number of dwellinghouses in respect of which notices were served requiring defects to be remedied ..	1
(b)	Number of dwellinghouses in which defects were remedied after service of formal notices	1

(ii) Proceedings under the Housing Acts:-

(a)	Number of dwellinghouses in respect of which notices were served requiring repairs	Nil
(b)	Number of dwellinghouses which were rendered fit after service of formal notices	Nil
(c)	Number of unfit houses purchased by local authority in accordance with Housing Acts	Nil
(d)	Number of certificates of disrepair issued	Nil

(iii) Slum Clearance - proceedings under the Housing Acts:-

(a)	Number of dwellinghouses in respect of which Demolition Orders were made	15
(b)	Number of dwellinghouses demolished in pursuance of Demolition Orders	2

(c)	Number of dwellinghouses, or parts, subject to Closing Orders	4
(d)	Number of dwellinghouses, or parts, rendered fit by undertakings	4
(e)	Number of dwellinghouses included in confirmed Clearance Orders	Nil
(f)	Total number of dwellinghouses on which Demolition Orders are operative and which are still occupied except under the provisions of sections 34, 35 and 46 of the Housing Act	27
(g)	Total number of dwellinghouses occupied under sections 34, 35 and 46 of the Housing Act, 1957	Nil
(h)	Houses demolished or closed voluntarily by owners which would otherwise have been the subject of statutory action to secure demolition or closure	4

(iv) Nissen Huts or other similar Hutments:-

Number still occupied	Nil

Housing Acts - Overcrowding.

(i)	(a)	Number of cases of overcrowding relieved during the year	5
	(b)	Number of persons concerned in such cases	31
(ii)	(a)	Number of dwellings overcrowded at the end of the year	12
	(b)	Number of families dwelling therein	12
	(c)	Number of persons dwelling therein	72

Housing Act, 1949.

(i) Number of dwellings for which applications for grants have been received:-

(a)	Standard Grant	157
(b)	Discretionary Grant	114

(ii) Number of dwellings subject to grant.

(a)	Standard Grant	166
(b)	Discretionary Grant	108

(iii)	Number of houses owned by local authority which have been the subject of grant aid by the Ministry	93

Moveable dwellings, tents, vans, etc.

(i) Caravan Sites and Control of Development Act, 1960.

(a)	Number of site licences	Nil
(b)	Number of sites exempt from licence	Nil

(ii) Public Health Act, 1936.

(a)	Number of site licences	3
(b)	Number of individual licences	24
(c)	No. of moveable dwellings permitted under above licences	198

(d) Number of inspections during the year - Sites 7
Dwellings .. 10

FOOD PREMISES.

Bakehouses.

(i)	Number in the district	1
(ii)	Number of inspections	5
(iii)	Number of contraventions found	Nil

Milk Supplies.

(i)	Number of distributors on register -	
	(a) Sterilised	77
	(b) Pasteurised	4
	(c) T.T.	3
(ii)	Number of samples of milk taken in course of delivery (other than biological)	Nil
(iii)	Number of inspections of dairy premises	71
(iv)	Number of contraventions of Regulations	Nil

Ice Cream.

(i)	Number of manufacturers on register	1
(ii)	Number of premises licensed for the sale of ice cream	107
(iii)	Number of inspections of premises made	32
(iv)	Number of contraventions found	Nil
(v)	Number of samples taken	Nil

Meat Products.

(i)	Number of premises registered for manufacture of meat products	27
(ii)	Number of inspections made	25
(iii)	Number of contraventions found	Nil

Other Food Premises.

(i)	Number of inspections	37
(ii)	Number of contraventions found	6
(iii)	Number of contraventions remedied	6

Slaughterhouses.

(i)	Number licensed -	
	(a) Abattoir type	1
	(b) Private (individual)	13
(ii)	Number operated by local authority	Nil

UNSOUND FOOD.

Meat Inspection.

The following table gives details of meat inspection work carried out during 1960.

Carcases Inspected and Condemned in Whole or in Part.

	Cattle excl. Cows.	Cows	Calves	Sheep and Lambs	Pigs
Number killed	3100	-	6	7000	1750
Number inspected	3100	-	6	6500	1750
All diseases except Tuberculosis & Cysticerci:-					
Whole carcases condemned	-	-	-	1	-
Carcases of which some part or organ was condemned	290	-	-	10	11
Percentage of number inspected affected with disease other than tuberculosis & cysticerci	9	-	-	.01	.06
Tuberculosis only:-					
Whole carcases condemned	-	-	-	-	-
Carcases of which some part or organ was condemned	-	-	-	-	-
Percentage of number inspected affected with tuberculosis	-	-	-	-	-
Cysticerosis:-					
Carcases of which some part or organ was condemned	12	-	-	-	-
Carcases submitted to treatment by refrigeration	12	-	-	-	-
Generalised and totally condemned	-	-	-	-	-

Other Foods Condemned -

1 Tin Ham. - 11 lb. 7 oz.

Method of Disposal of Condemned Food -

Collected and disposed of by Offensive Trades Establishments.

WATER SUPPLIES.

Wells.

(i)	New wells sunk	Nil
(ii)	Cleansed, repaired	Nil
(iii)	Closed as polluted	Nil

Public Supply.

(i)	Percentage of houses supplied	94 %
(ii)	Area supplied	100 %
(iii)	New Cisterns provided	Nil
(iv)	Cisterns cleansed, repaired, covered etc.	Nil

Water samples obtained for analysis.

Public Supplies.

See detailed report on public supplies - page 21.

Private Supplies.

	0- 1	1 - 2	3 - 10	10+	Total
Presumptive Coli	3	-	1	4	8
Type 1 Coli	3	1	1	3	8

DRAINAGE AND SEWERAGE.

Closets.

(i)	Number of houses with privy vaults in the district	9
(ii)	Percentage of houses with pail closets in the district	20%
(iii)	Number of water closets substituted for pail closets and privy vaults	624
(iv)	Percentage of houses with water closets in the district	80%

Drains.

(i)	Drains examined, tested, exposed etc.	769
(ii)	Drains unstopped, repaired, trapped, etc.	183
(iii)	Waste pipes, rainwater pipes, disconnected, required	397
(iv)	New soil pipes or ventilating shafts fixed	47
(v)	Drains reconstructed	522
(vi)	Number of notices served	Nil

Sewers.

(i)	New lengths laid	6
(ii)	Number of open sewers cleansed	37
(iii)	Length of open sewers cleansed	504 Chain
(iv)	Blocked sewers opened	105

Cesspools and Septic Tanks.

(i)	Cesspools emptied, cleansed etc.	260
(ii)	Cesspools abolished	212

GENERAL.

Offensive Trades.

(i)	Number of premises in the district	1
(ii)	Number of inpsections	6
(iii)	Contraventions of bye-laws	Nil

Knackers Yard.

(i)	Number Licenced	1
(ii)	Number of inspections	6
(iii)	Contraventions of bye-laws	Nil

Shops Act, 1950.

(i)	Number of shops inspected	50
(ii)	Number of contraventions remedied	3

Disinfection and Disinfestation.

(i) Number of rooms of premises disinfected -
- (a) Infectious disease other than tuberculosis 4
- (b) Tuberculosis .. .. Nil

(ii) Number of premises subject to disinfestation 5

Refuse Collection and Disposal.

(i) Percentage of premises from which refuse is collected .. 96%
(ii) Frequency of collection .. .. appr. Fortnightly
(iii) Method of disposal .. ..Part controlled Tipping

Nuisances.

(i) Number of nuisances during the year abated as a result of informal action by the Public Health Inspector 25
(ii) Number of nuisances reported to the Council .. .. .. Nil

Details of Nuisances Abated.

	After Informal Intimation	After Statutory Notice
Accumulation of refuse	3	-
Foul ditches, ponds and Stagnant Water	5	-
Drainage	21	-
Poultry & Animals	1	-
Dangerous premises	2	-
Miscellaneous Nuisances	4	-

Rats & Mice Destruction.

(i) Number of rodent operatives employed 1
(ii) Number of premises treated -
- (a) dwellinghouses 495
- (b) other premises 144

Atmospheric Pollution.

(i) Number of visits 12
(ii) Number of nuisances found .. .. Nil

FACTORIES ACTS, 1937 to 1959.

Administration of the Factories Act, 1937.

Part 1 of the Act.

1 - Inspections for purposes of provisions as to health (including inspections made by the Public Health Inspectors).

Premises	Number on Register	Number of		
		Inspections	Written notices	Occupiers prosecuted
(i) Factories in which Sections 1,2,3,4 and 6 are to be enforced by Local Authority	6	17	-	-
(ii) Factories not included in (i) in which Section 7 is enforced by the Local Authority	74	45	-	-
(iii) + Other premises in which Section 7 is enforced by the Local Authority. (excluding outworkers' premises).	14	12	-	-
Total:	94	74	-	-

+ i.e. Electrical Stations (Section 103 (1)), Institutions (Section 104) and sites of Building Operations and Works of Engineering Construction (Sections 107 and 108).

2 - Cases in which defects were found.

Particulars	Number of cases in which defects were found				Number of cases in which prosecutions were instituted
	Found	Remedied	Referred To H.M. Inspector.	Referred By H.M. Inspector.	
Want of cleanliness (S.1)	3	3	-	-	-
Overcrowding (S.2)	-	-	-	-	-
Unreasonable temp. (S.3)	-	-	-	-	-
Inadequate ventilation (S.4)	-	-	-	-	-
Ineffective drainage of floors (S.6)	-	-	-	-	-
Sanitary Conveniences (S.7): (a) Insufficient	-	-	-	-	-
(b) Unsuitable or defective	-	-	-	-	-
(c) Not separate for sexes	-	-	-	-	-
Other offences against the Act (not including offences relating to out-work).	-	-	-	-	-
Total:	3	3	-	-	-

PART VIII OF THE ACT.

Details of Outwork (Sections 110 and 111) carried on in the district.

Number of out-workers in August list required by Section 110 (1) (c)	2
Nature of work	Wearing apparel - making etc.
Number of cases of default in sending lists to the Council (Section 110)	Nil
Number of prosecutions for failure to supply lists (Section 110)	Nil
Number of instances of work in unwholesome premises (Section 111)	Nil
Number of notices served (Section 111)	Nil
Number of prosecutions (Section 111)	Nil